WHAT IS CLAIMED IS:

1. A method for cooling at least one laser diode with a cooling fluid which does not come into direct contact with the at least one laser diode, the method comprising:

providing a source of cooling fluid;

positioning heat sinks on opposing sides of the at least one laser diode wherein each of the heat sinks has a passage formed therein and wherein the passages are in fluid communication with the source of cooling fluid but not with the at least one laser diode; and

circulating the cooling fluid through the passages wherein heat is removed from the sides of the at least one laser diode by conduction into the heat sinks and wherein heat is removed from the heat sinks by the cooling fluid via forced convection.

2. The method as claimed in claim 1 further comprising the step of electrically and thermally bonding the heat sinks to the at least one laser diode.

3. The method as claimed in claim 1 wherein the heat sinks serve as electrical connections to and from the at least one laser diode.

4. The method as claimed in claim 1 wherein at least one of the heat sinks has a heat spreader and wherein the method further comprises positioning the heat spreader adjacent the at least one laser diode wherein the heat spreader is made of a material different than the material of the at least one heat sink.

5. A method for cooling an array of laser diodes with a cooling fluid which does not come into direct contact with the laser diodes, the method comprising:

providing a source of cooling fluid;

positioning heat sinks on opposing sides of each of the laser diodes such that each heat sink is in contact with a single laser diode and wherein each of

the heat sinks has a passage formed therein and wherein the passages are in fluid communication with the source of cooling fluid but not with the laser diodes; and

circulating the cooling fluid through the passages wherein heat is removed from the sides of each of the laser diodes by conduction into the heat sinks and wherein heat is removed from the heat sinks by the cooling fluid via forced convection.

6. The method as claimed in claim 5 further comprising the step of electrically and thermally bonding the heat sinks to their respective laser diodes.

7. The method as claimed in claim 5 wherein the heat sinks serve as electrical connections to and from their respective laser diodes.

8. The method as claimed in claim 7 wherein each of the heat sinks for a given laser diode is in electrical contact with either a heat sink associated with a different laser diode or with an electrical supply such that multiple laser diodes are electrically connected in series or in parallel.

9. The method as claimed in claim 5 wherein at least one of the heat sinks has a heat spreader and wherein the method further comprises positioning the heat spreader adjacent its laser diode wherein the heat spreader is made of a material different than the material of the at least one heat sink.

10. A system for cooling at least one laser diode with a cooling fluid which does not come into direct contact with the at least one laser diode, the system comprising:

a source of cooling fluid;

a plurality of heat sinks in thermal contact with opposing sides of the at least one laser diode, each of the heat sinks having a passage formed therein and wherein the passages are in fluid communication with the source of cooling fluid but not with the at least one laser diode; and

a mechanism for circulating the cooling fluid through the passages wherein heat is removed from the sides of the at least one laser diode by conduction

into the heat sinks and wherein heat is removed from the heat sinks by the cooling fluid via forced convection.

11. The system as claimed in claim 10 wherein each of the passages includes a flow inlet and a flow outlet and wherein the flow inlets are fluidly coupled to each other and the flow outlets are fluidly coupled to each other.

12. The system as claimed in claim 11 further comprising a support structure for supporting the heat sinks and wherein the support structure includes at least one cooling liquid line fluidly coupled to the passages of the heat sinks.

13. The system as claimed in claim 10 further comprising a support structure for supporting the heat sinks wherein each of the passages includes a flow inlet and a flow outlet and wherein the support structure includes a cooling liquid supply line fluidly coupled to each of the flow inlets and a cooling liquid return line fluidly coupled to each of the flow outlets.

14. The system as claimed in claim 10 wherein the heat sinks are bonded to the at least one laser diode with solder or an electrically and thermally conducting adhesive.

15. A system for cooling an array of laser diodes with a cooling fluid which does not come into direct contact with the laser diodes, the system comprising:

a source of cooling fluid;

a plurality of heat sinks in thermal contact with opposing sides of each of the laser diodes wherein each heat sink is in contact with a single laser diode, each of the heat sinks having a passage formed therein and wherein the passages are in fluid communication with the source of cooling fluid but not with the laser diodes; and

a mechanism for circulating the cooling fluid through the passages wherein heat is removed from the sides of each of the laser diodes by conduction

into the heat sinks wherein heat is removed from the heat sinks by the cooling fluid via forced convection.

16. The system as claimed in claim 15 wherein each of the passages includes a flow inlet and a flow outlet and wherein the flow inlets are fluidly coupled to each other and the flow outlets are fluidly coupled to each other.

17. The system as claimed in claim 16 further comprising a support structure for supporting the heat sinks and wherein the support structure includes at least one cooling liquid line fluidly coupled to the passages of the heat sinks.

18. The system as claimed in claim 15 further comprising a support structure for supporting the heat sinks wherein each of the passages includes a flow inlet and a flow outlet and wherein the support structure includes a cooling liquid supply line fluidly coupled to each of the flow inlets and a cooling liquid return line fluidly coupled to each of the flow outlets.

19. The system as claimed in claim 15 further comprising at least one fastener for removably fastening the heat sinks together.

20. The system as claimed in claim 15 wherein the heat sinks are bonded to their respective laser diodes with solder or an electrically and thermally conducting adhesive.